ABSTRACT OF THE DISCLOSURE

The following techniques for word-level networks are presented: constraints solving, case-based learning and bit-slice solving. Generation of a word-level network to model a constraints problem is presented. The networks

5 utilized have assigned, to each node, a range of permissible values.

Constraints are solved using an implication process that explores the deductive consequences of the assigned range values.

The implication process may include the following techniques: forward or backward implication and case-based learning. Case-based learning includes

10 recursive or global learning.

As part of a constraint-solving process, a random variable is limited to a single value. The limitation may be performed by iterative relaxation. An implication process is then performed. If a conflict results, the value causing the conflict is removed from the random variable by range splitting, and backtracking

15 is performed by assigning another value to the random variable.

A procedure is provided for efficiently solving bit-slice operators.